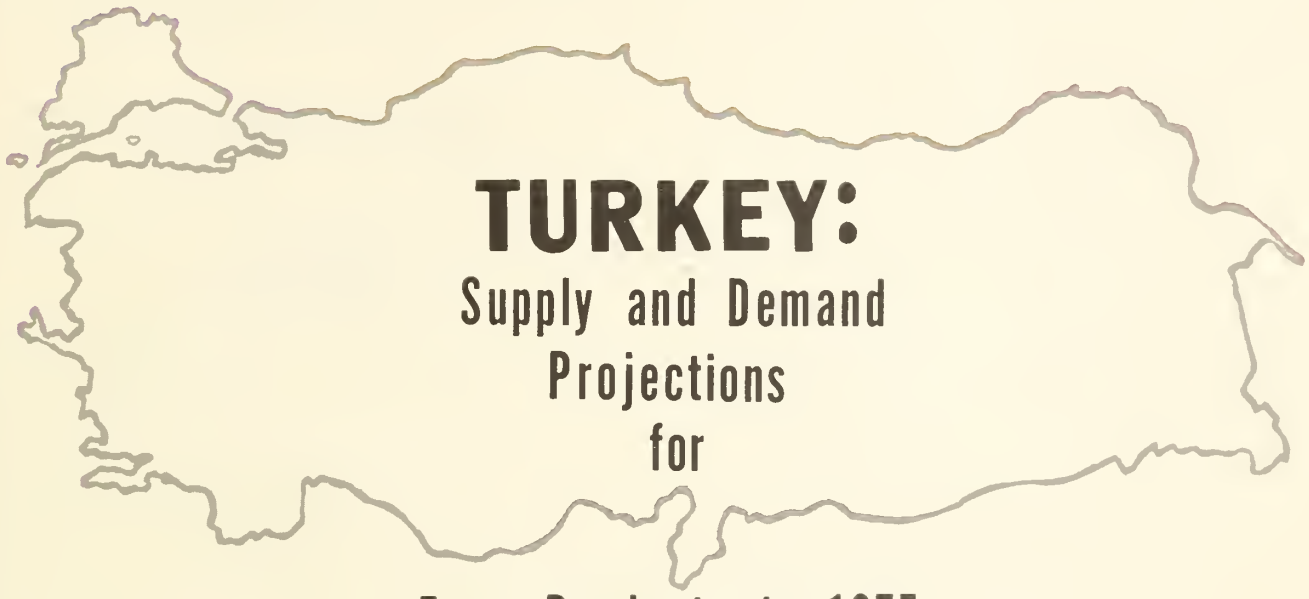
Historic, archived document

Do not assume content reflects current
scientific knowledge, policies, or practices.

A281.9
Ag 83
copy 2

ERS-Foreign 204



TURKEY:
Supply and Demand Projections for
Farm Products to 1975 with Implications for U.S. Exports

U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY
JAN 2 - 1980
CURRENT SERIAL RECORDS

U.S. DEPARTMENT OF AGRICULTURE ECONOMIC RESEARCH SERVICE

C O N T E N T S

	Page
SUMMARY	iv
INTRODUCTION	1
PROJECTIONS OF DEMAND	1
Population	1
Economic Growth	2
Food Consumption	3
PROJECTIONS OF SUPPLY	3
Land Use	3
Productivity	3
AGRICULTURAL EXPORTS	5
Cotton	6
Tobacco	6
Sugar	7
Tea	8
Fruits and Nuts	8
AGRICULTURAL IMPORTS	9
Wheat	9
Feed Grains and Meat	10
Fats and Oils	11
TABLES	14

Washington, D.C. November 1967

SUMMARY

Turkey has done well and promises to do better in the production of agricultural specialties such as tobacco, cotton, fruit, nuts, tea, and sugar. In 1965, the first four of these commodities accounted for 70 percent of agricultural exports. Total agricultural exports, in turn, accounted for 85 percent of all exports. However, the future production of wheat, feed grains, meat, and vegetable oils is projected to be inadequate to meet future demands.

Turkey's agricultural import needs have varied in relation to the growing conditions during a given year. Imports of agricultural commodities, for instance, totaled $128.8 million in 1963, but only $51 million in 1965. The value of U.S. agricultural exports to Turkey during these 2 years was $62.5 million and $30 million, respectively.

Cultivated acreage has nearly doubled in the last 20 years, largely as a result of mechanization. Most of this increase occurred in the early fifties. It is generally agreed, however, that further increase is strictly limited and that the total area used for agriculture is more likely to decrease rather than to increase in the future.

Wheat has been one of Turkey's main agricultural imports. The wheat area and productivity are projected to remain relatively static through 1975. Wheat imports are projected to rise from 348,000 tons in 1965 to 716,000 tons in 1970 and 1,514,000 tons by 1975. Turkey has been obtaining nearly all its wheat imports from the United States under U.S. Public Law 480 (P.L. 480). It is assumed that Turkey will be turning to the commercial market in future years. The United States is projected to supply approximately 50 percent of Turkey's future wheat needs--350,000 tons in 1970 and 750,000 tons in 1975. Should the new wheat varieties being introduced in Turkey live up to expectations, however, these projected import levels are much too high.

Turkey's vegetable oil imports averaged 50,000 tons during 1958-64. Production of the main oil, olive oil, is expected to increase significantly, so import needs are placed at 30,000 tons in 1970 and 46,000 tons in 1975. The United States has been supplying nearly all of Turkey's edible oil needs under P.L. 480. In future years, Western European countries expect to become exporters of soybean oil. Despite this, the United States is projected to supply approximately two-thirds of Turkish needs, or about 20,000 tons in 1970 and 30,000 tons in 1975.

From 1948 to 1958 livestock numbers increased while the amount of feedstuffs declined. Since 1959 both nutriments and animal numbers have been relatively constant, indicating that lack of feedstuffs is a major factor in inhibiting expansion of the livestock industry.

Turkey has been a minor exporter of meat animals and feed grains, but is projected to become an importer. Meat import needs are estimated at 20,000 tons in 1970 and 40,000 tons in 1975. The United States is not expected to become a significant supplier of this market. Turkey's feed grain import needs for these years are projected at 300,000 tons and 600,000 tons respectively. The United States is projected to supply Turkey with approximately 200,000 tons of feed grains in 1970 and 400,000 tons by 1975.

Cotton has recently become the major export, replacing the former leader, tobacco. Cotton production has shown the most remarkable increase among all the crops in Turkey. Further substantial increases in cotton production are expected. However, cotton exports are projected to increase only moderately--from 175,300 tons in 1965 to 183,000 tons in 1975. This slow rate of increase is expected not because of lack of production potential but because of an anticipated lack of export markets.

Turkey leads the world in the export of oriental tobacco, but the area which produces the quality of tobacco for which Turkey is known is limited, and only moderate increases are projected in productivity. Tobacco exports by 1975 are placed at 87,000 tons, compared with 64,800 tons in 1965.

Fruit and nut products appear to offer the greatest opportunity Turkish agriculture has to develop both a domestic and a foreign market. Turkey's climate is excellent for these products. The chief difficulty confronting this possibility is the inefficient handling and shipping of the crop. One crop that is already a great export item--the third most important in Turkey--is hazelnuts, or filberts. Turkey leads the world in the production and exports of filberts. Exports of all fruits and nuts are projected to increase from 1.0 million tons in 1965 to 1.3 million tons in 1975.

The production of sugar and tea have been triumphs in Turkey's development. The country has moved from an importer to an exporter of these items. Sugar exports are projected at 233,000 tons in 1970 and 259,000 tons in 1975. Exports of tea were 2,600 tons in 1965, and are estimated at 7,000 tons in 1970 and 5,200 tons in 1975. The increase in domestic tea demand is expected to be greater than the increase in tea production during the 1970-75 period.

BULGARIA
GREECE
BLACK SEA
Sinop
U. S. S. R.
Bosporus
Istanbul
Sea of Marmara
Ordu
Rize
Giresun
Trabzon
Canakkale
Bursa
Sakarya Nehri
Ankara
Kizil Irmak
Erzurum
Eskisehir
Delice Irmak
Kizil Irmak
Gediz Nehri
Lake Tuz
Afyon
Kayseri
Murat Nehri
Lake Van
Van
IRAN
Izmir
Nevsehir
Aydin
Soke
Isparta
Konya
Tigris
Seyhan Nehri
Ceyhan Nehri
Maras
Euphrates
Mugla
Antalya
Adana
IRAQ
Mersin
DODECANESE
RHODES
Gulf of Antalya
Silifke
Gulf of Alexandretta
Alexandretta
Antioch
International boundary
National capital
Statute Miles
0 50 100 150
0 50 100 150
Kilometers
MEDITERRANEAN SEA
CYPRUS
SYRIA
TURKEY
ATLANTIC OCEAN
AFRICA

TURKEY

TURKEY: SUPPLY AND DEMAND PROJECTIONS FOR FARM PRODUCTS TO 1975 WITH IMPLICATIONS FOR U.S. EXPORTS

By

Lyle E. Moe, Agricultural Economist
Foreign Regional Analysis Division
Economic Research Service

INTRODUCTION

This report is a summary and evaluation of a detailed report, "Agriculture in Turkey: Long-Term Projections of Supply and Demand," issued in March 1967.[1/] The detailed study was prepared by the School of Business Administration and Economics, Robert College, Istanbul, Turkey, under contract with the U.S. Department of Agriculture. The contract was administered by the Africa and Middle East Branch, Foreign Regional Analysis Division, Economic Research Service of the Department.

The major objectives of the detailed report (here called the Robert College report) were the development of projections regarding the production, consumption, imports, and exports of selected Turkish agricultural products for 1970 and 1975 (table 1).[2/]

The Robert College report summarized and analyzed the findings and methodology of 20 separate studies on the Turkish economy and agriculture. The separate studies were conducted by different researchers under subcontract with Robert College. These various studies were pulled together by the project leader, Dr. Edgar Z. Palmer.

The projections arrived at are neither targets to be aimed at nor reliable forecasts of what will actually take place. They are meant rather to be estimates of the probable future supply of and demand for agricultural products, based on specific assumptions. The assumptions have been framed, of course, to be as realistic as possible. The projections supply the bases for their own amendment in the future, should the underlying assumptions be changed as a result of technological developments, new information, or new policies.

All tonnages in this report are metric.

PROJECTIONS OF DEMAND

Population

Population projections are of great importance in forecasting demand for consumer goods, since the aggregate demand for a product is no more than the total population

1/ Copies of this report are available from the Division of Information, office of Management Services, U.S. Department of Agriculture, Washington, D.C., 20250.

2/ Tables are grouped at the end of the report.

multiplied by the per capita demand. Since we are primarily concerned with forecasting demand for foodstuffs, which are usually inelastic with respect to changes in per capita income, population is likely to be the major cause of change in total demand.

The last Turkish census was in December 1965. The general expectation was for a continuation of the rate of increase experienced in the previous 5-year census period, 2.9 percent. However, the 1965 returns indicated a population of 31.4 million, which was equivalent to an annual rate of growth of 2.5 percent during 1961 through 1965.

One factor which accounts for some of the difference between the expected and the reported figure is that some 200,000 workers have migrated temporarily to Europe for work in the past 5 years. This would account for about 40 percent of the shortfall from the expected population figure.

The population projections through 1975 are based on the premise that the percentage increase will turn up again. The average rate of increase from 1965 through 1975 is placed at 2.6 percent. Thus, the population of Turkey is projected to be 35.3 million in 1970 and 40.5 million by 1975.

Economic Growth

The per capita demand for a commodity depends largely on individual income. Therefore, projections of income, like those of population, assume considerable importance in a study of demand forecasts.

Per capita income depends, of course, upon the level of gross national product (GNP). There are two complete but differing sets of national income accounts in Turkey, both compiled by official agencies of the Government. To resolve these differences, the Robert College study made an independent estimate of the performance of the economy since 1948. The resulting GNP figures were generally between the two sets of Government income figures.

Trends of the GNP and its various components, as developed in the Robert College report, were computed for the 18 years from 1948 to 1965, and the 5 years from 1961 to 1965. The 18-year trend indicated an average annual growth rate of 3.5 percent. The 5-year trend indicated an average annual growth rate of 5.7 percent. A brake on Turkey's rate of economic growth has been its unfavorable balance of trade (table 2).

Turkey has adopted a national plan; the first 5 years extended from 1963 to 1967. It might be argued that acceptance of the figures set up in the plan, which indicate a rise in the GNP of 7 percent per year, would allow projections of probable future levels of economic activity. Unfortunately, such plans are not always fulfilled. Preliminary figures indicate that the targets contained in the plan were met in 1966, largely as the result of an excellent crop year, but economic activity was below the targets in 1963, 1964, and 1965.

The 5-year trend shows a positive effect of the operation of the national plan, but a lower rate of increase in the GNP than that in the plan. Whether the short-term trend can be trusted to project the GNP growth rate 10 years into the future is questionable. A sounder growth figure was considered to lie between the long-term and short-term trends. Thus, the GNP was projected to increase at an annual rate of 3.7 percent from 1963 to 1975 (table 3). The resultant annual rise in the national income per capita during this period is 1.1 percent. Per capita income was therefore projected to increase to $222 by 1975, compared with $200 in 1965.

Food Consumption

Having arrived at the income projections, it was necessary to derive the relationship between income and expenditures on food. Household consumption surveys were utilized to measure this effect.

At the time the original study was initiated, the State Statistical Unit of Turkey was conducting household consumption studies in several cities. The rural population, comprising 70 percent of the nation, was not covered by these studies. A rural sample of five regions of the country was therefore undertaken by Robert College. This was the first time such rural surveys had been made in Turkey.

In the urban and rural surveys, both the physical quantities and the values of each commodity consumed as food were recorded. Unfortunately data from only one urban survey was available at the time the Robert College report was prepared. The empirical findings of the expenditure data analyses are summarized in table 4. The household surveys also showed the differences in the quantities consumed of various commodities in the urban and rural sectors. This was of great assistance in determining the projected levels of consumption.

The partial effect of income on consumption--other variables remaining unchanged--is measured by income elasticity, which measures the percentage change in consumption associated with a 1 percent change in income. As shown in table 4, the effect of income on consumption varied among commodities and between urban and rural sectors. As expected, negative income elasticities were obtained for some products. This means that when income rises, we can expect a decrease in the consumption of these products. The consumption elasticity for food expenditures as a whole was much smaller in the urban than in the rural sector. This was partly due to the fact that the highest income group spent less per unit than the next highest group.

Trend analysis of time series data was used as a check on the projections obtained from the demand models utilizing the elasticities.

PROJECTIONS OF SUPPLY

Land Use

While it is generally agreed that the spread of the cultivated area in Turkey is unlikely to increase in the future, Turkish statistics regarding the allocation of land to its various uses are subject to question. The data of the State Institute of Statistics are gathered annually by questionnaires from local officials. The State Planning Organization has established its own set of figures, beginning with 1958.

A check on the validity of the two sets of figures was afforded by a sample agricultural census taken in 1963. The data from the census were used by Robert College to evaluate the national figures. As a consequence, revised estimates of land use were made for various commodities. They are presented in the sections on specific commodities in this report. In general, the revised estimates indicate that the area devoted to crops has been declining. This trend is projected to continue through 1975 (table 5).

Productivity

Because Turkey's cultivated land area is expected to decline, any increase in agricultural production must therefore come from an increase in the productivity per hectare of land.

Six possible sources of improved productivity were investigated. They were extension, credit, chemicals, machinery, irrigation, and forestry.

Extension activities in Turkey are fragmented and spread among several agencies. Even so, much of the past improvement in yields may be ascribed to the extension workers. The Robert College report, based on data through 1965, concluded that extension is unlikely to become more influential than it has been in the past. This may prove to be an erroneous conclusion, however, as in 1966 the Turkish Government began to expand its extension activities vigorously.

The use of agricultural credit agencies for promoting productivity is still in the experimental stage, and it is not likely to become more effective on a large-scale basis by 1975.

In the amount of commercial fertilizer applied per hectare of agricultural land, Turkey ranks far down on the list of countries. About 3 kilograms (active ingredients) per hectare was applied in 1961-62 and 5.5 kilograms in 1965. This compares with 35.2 kilograms per hectare for Spain and 42.9 for Greece in 1961-62.

The consumption of fertilizer in Turkey rose from 107,000 tons in 1960 to 786,000 tons in 1965, a phenomenal rate of increase. The Government national plan calls for an increase in commercial fertilizer use of 200,000 tons a year. This is considered an attainable target and Turkey is therefore expected to be consuming about 2.9 million tons of fertilizer per year by 1975. This would be a lower rate of increase than during 1960-65.

Efficiency in many types of agricultural production is aided by the use of machinery, from simple wooden plows to great combines. One index to the amount and complexity of such machinery is the motive power applied. This is in two main forms: tractors and animals. The number of tractors in Turkey is estimated to increase from 51,800 in 1964 to 57,000 in 1970 and 63,000 in 1975. Because a tractor in Turkey cultivates about 75 hectares per year, compared with approximately 7.5 hectares per animal per year, about 4.75 of the 15.5 million cultivated hectares in 1975 could be cultivated by tractor power.

There are some 5 million hectares which can be irrigated in Turkey; 1.2 million hectares are now under irrigation or will be served by projects now under construction. Plans for the future would raise this to about 2.5 million hectares. Of the total 5 million hectares, however, a considerable portion is land of inferior quality that would need careful management to make irrigation profitable. Thus the benefit-cost ratio of an irrigation project on some of the remaining area may not be high.

To gage the effect of irrigation on crop production, an investigation was made of crop productivity on 345,000 hectares before and after irrigation. This investigation included not only the effect of irrigation on productivity for specific crops, but also the probable resultant shifting in the allocation of irrigated land from one crop to another. With irrigation, the area planted to crops such as sugar beets, cotton, and oranges tended to increase at the expense of such crops as cereals, grapes, and olives. These adjustments were taken into account in arriving at the individual commodity projections.

The Turkish Forest Service confines itself to increasing the facilities within the present forest areas. It is not inclined to undertake an extensive program of retiring large areas from cultivation for new forestation to protect the land from erosion and floods. If such a program were undertaken, forests would also furnish farmers with wood for fuel which, in turn, would release animal manure for fertilization.

The Robert College report concludes that, in general, it is difficult to foresee any significant increase over the present rate of rise in productivity. Continuation of present trends is all that can be expected for most agricultural products.

AGRICULTURAL EXPORTS

Turkey's exports are, on an average, 85 percent agricultural, as would be expected in a primarily agricultural country. Consequently, wide fluctuations exist in export volume from year to year due to harvest conditions. These fluctuations result from a dependence upon only a few major items of export. In 1965, cotton, tobacco, fruits (mainly dried), and nuts (principally filberts and pistachios) contributed 70 percent of the total value of all agricultural exports (table 6).

The agricultural and industrial income growth of Turkey, as represented by national income data, was characterized by an exponential growth trend during 1948-53. Since 1953, the agricultural growth trend has become linear. This is a fundamental problem of the Turkish economy. During 1948-53, the policy emphasis was placed upon agriculture, and new marginal lands were brought under cultivation. This, combined with favorable weather conditions, brought about a rapid growth in agriculture and a corresponding increase in exports. Since then, however, the growth rate in agriculture, and agricultural exports, has declined considerably.

The low value of Turkish exports, on a per capita basis, compared with other countries with similar economies is indicated in the following table:

Country	1960-62 av. population	1960-62 av. value of exports	Per capita value of exports
	Million	Million dollars	Dollars
Yugoslavia	18.6	608.4	32.7
Syria	4.9	134.1	27.6
Greece	8.4	225.3	26.9
Spain	30.6	723.4	23.6
U.A.R. (Egypt)	26.6	485.6	18.1
Turkey	28.6	349.5	12.2

Of tremendous importance to Turkey is the agreement signed in September 1963 making Turkey an associate member in the European Common Market (EEC). It sets up three stages for Turkey's eventual full membership in the Common Market. The preliminary, the transitional, and the final stages. The preliminary stage, to last 5 to 8 years, grants Turkey the same tariffs as are applied within the Common Market itself on tobacco and raisins, and half the common tariff on filberts and dried figs. Since Greece had entered into a similar arrangement 2 years earlier, and since Greece is an exporter of these same crops, the agreement restored the balance between these two countries with respect to their exports to Central Europe.

U.S. imports from Turkey have been around $60 million in recent years and consist primarily of oriental tobacco and nuts (table 7).

Turkey's most highly competitive agricultural export with U.S. farm product exports is cotton. Turkey produces varieties similar to most of those exported by the United States, and cotton from both countries is consumed in many of the same markets.

Turkey competes indirectly with U.S. tobacco sales in both the U.S. domestic market and world markets. Nuts, dried fruits, and in some years, citrus fruits also compete with U.S. domestic production. While tea and sugar are not exported by the United States, these products are important to Turkish agriculture and projections for them were developed.

Cotton

Cotton is now the chief export of Turkey and may well increase its lead over the former leader, tobacco. Turkey, in 1965, was the world's sixth largest exporter of raw cotton. Exports in 1964 and 1965 averaged 168,300 tons, compared with average exports of 100,580 tons in the previous 5 years, and a 1950-54 average of 72,060 tons.

Cotton acreage has increased slowly in Turkey. In 1965, 680,000 hectares were planted, compared with 625,000 hectares in 1955. Cotton is the one crop in Turkey that has had a considerable increase in yields. The increase is largely due to the introduction of new varieties, the increase of irrigation, and better cultural practices. The advance has all taken place since 1957. Currently, about half of the cotton grown is irrigated. The yield from irrigated land has been approximately double that from nonirrigated land. The average yield of lint cotton in 1964 was 480 kilograms per hectare, well above the world average of 338.

Imports of cotton yarn after 1960 were virtually discontinued and are no longer recorded. This indicates that domestic production is adequate in quantity and presumably in quality for domestic consumption. The import of cotton cloth, which in 1948 amounted to one-third of the total domestic consumption, was down to about 1 percent in 1958. Currently, about 3 percent of the total cloth production is exported.

Because of the increased use of synthetic fibers, the per capita consumption of cotton has not changed in Turkey in the past decade. No change is projected during the coming decade. On the basis of a continued per capita consumption of 3.73 kilograms through 1975, and after allowances for waste, total domestic consumption is placed at 159,000 tons in 1970 and 165,000 tons in 1975.

The chance for improving yields still further is good. A future average yield of 572 kilograms per hectare is considered feasible. The land area in cotton is not expected to increase appreciably, but it could be expanded slightly to 700,000 hectares by 1975. More irrigation in cotton-growing areas, plus better production techniques, could result in total production of 400,000 tons, leaving 235,000 tons for export. Low world cotton prices would in the long run, however, discourage this level of production. Increasing production in many less developed countries, where cotton exports represent a means for gaining foreign exchange, together with the increase in the world's use of synthetic fibers, all tend to lower the prospects for good cotton prices.

It is also doubtful that Turkey could find an export market for 235,000 tons of cotton each year by 1975. The long-term trend projection of exports points to 183,000 tons a year, a more realistic figure (table 8). The Robert College report therefore places production by 1975 at 348,000 tons; considerably less than the 400,000 tons that could be produced.

Tobacco

Turkey is the world's leading producer of oriental-type tobacco, producing 35 to 45 percent of the total. Tobacco has, on the average, accounted for about

one-fourth of the total of the nation's exports. It usually occupies less than 1 percent of the cultivated area of Turkey; about 10 percent of the farm families grow tobacco.

The provinces and parts of provinces in which tobacco may be cultivated are specified by legal regulations. The farmer is held to strict account for all the tobacco he produces, which must be stored and marketed in stated channels. The object of this regulation is to preserve the quality and type of Turkish tobacco that is exported. Only certain types of seed and soil will produce the quality for which Turkey is noted. There is a suspicion that recent extensions of the area have had an adverse effect upon this quality.

The fear of altering the quality of the tobacco has held back experimentation with fertilizers and new varieties as well as with irrigation. Quality Turkish oriental tobacco cannot now be grown on irrigated land. Thus, productivity has not increased, and indeed has tended to decline with the extension of the area cultivated to less suitable lands.

The 1975 projected tobacco area is only a little larger than the all-time high of 1964 (table 9). Tobacco production, which was a record high of 175,000 tons in 1964, is projected at 167,000 tons in 1970 and 185,000 tons in 1975.

The per capita consumption of tobacco in Turkey is projected at 1.18 kilograms in 1970 and 1975. Domestic consumption therefore is estimated at 42,000 tons in 1970 and 48,000 tons in 1975. After allowances for waste and carryover stock, export availabilities in 1970 and 1975 are placed at 81,000 and 87,000 tons.

Turkey is expected to find an increasing market for its tobacco in the developing countries. The use of tobacco is almost as characteristic of the lower economic groups as of the higher; when persons begin to afford any luxuries at all tobacco seems to be one of those adopted.

Sugar

The production of sugarbeets and sugar in Turkey has been increasing steadily since 1951. Before that time, there were four sugar factories in the country. There are now 17 factories distributed over the country.

Most of the increase in sugarbeet production has come from expansion of the area. Further expansion may not be feasible, not because there is a shortage of suitable land but because, as the area increases, the distance from the factories increases and transportation costs rise. No new factories are provided for in the present 5-year plan, but new factories would be necessary to open up new territories for cultivation.

Exports of sugar began in 1956 and reached a peak in 1961. After an unhappy experience in exporting sugar in 1960 and 1961, when a large volume was sold at ruinously low world prices, official policy cut back Turkish production to less than 500,000 tons. The restrictions were relaxed in 1964.

Sugar production is projected to reach 778,000 tons by 1970 and 942,000 tons by 1975 (table 10). Per capita consumption of sugar is projected to increase from 10.7 kilograms per year in 1960 to 15.4 and 16.9 kilograms by 1970 and 1975. This leaves 233,000 tons available for export by 1970 and 259,000 tons in 1975.

Tea

Tea replaced coffee as the most popular drink in Turkey in 1956. Coffee must all be imported, but tea is grown in great quantity in Turkey. After many false starts, a proper area for growing tea was found in the extreme northeastern part of the country along the Black Sea coast adjacent to Russia. This area is almost subtropical and has the heaviest rainfall in Turkey.

Until 1962, Turkish tea was blended half-and-half with imported tea; this was changed to 25 percent imported and 75 percent Turkish, and the need for using imported tea is disappearing. Improvement of the quality of Turkish tea helped increase its percentage.

The story of tea production since 1948 has been that of rapid and almost uninterrupted expansion. The area devoted to tea has risen from 3,000 to 19,000 hectares. It is expected that the Government will stabilize the area at around 26,000 hectares. Productivity and quality are likely to suffer if the area is expanded beyond this. Total production is projected to increase from 10,000 tons in 1965 to 21,000 tons in 1970 and 24,300 tons in 1975.

Domestic consumption of tea is projected to increase from 375 grams per person in 1965 to 422 grams in 1970 and 472 in 1975. This results in a total domestic demand of 14,900 tons in 1970 and 19,100 tons in 1975, leaving 7,000 tons available for export in 1970 and 5,200 tons available in 1975. If an export market of this size is to be developed, the methods of handling the tea will have to vastly improved. Under present shipping and handling procedures there is a considerable loss of quality.

Fruits and Nuts

Among Turkey's most important resources are the climatic and the other conditions for growing a great variety of fruits, nuts, and vegetables. Turkey claims to be the original home of many species of fruit, such as apples, quinces, plums, and cherries, as well as olives, grapes, and many nuts.

In spite of the long history of the cultivation of fruits and nuts in Turkey, their active development on a commercial scale is quite recent. Fruits, nuts, and vegetables utilize 3.4 percent of the cultivated land, but produce over 10 percent of the value of agricultural products. The high value of these crops insures that as markets develop, more land can be shifted from other crops into this type of product, insofar as there are suitable areas. But, while the amount of suitable land is limited, much of the improvement in production can be expected to come from better cultural and marketing practices. Currently, there is a good deal of waste of fruit in all stages of marketing and little grading, labeling, or advertising is done to increase the price and sale of the products.

About half of the value of exports in this industry is for filberts--a product for which Turkey is the world's major supplier. Grapes are second in importance in export value; they are shipped mostly as raisins. Figs are third, also shipped in dried form. Pistachios are the fourth most important export item in recent years. Citrus fruit and peaches show promise as export commodities. On the other hand, apples have apparently lost their former market in Arabian countries to the new Lebanese fruit industry.

The export market takes about 90 percent of the filbert crop, 30 percent of the fig and pistachio crops, 10 percent of the grape crop, 6 percent of the citrus crop, and one-tenth of 1 percent of such crops as apples, pears, and peaches. Thus, except for the first three commodities, exports today take a small proportion of any of these crops.

The projected levels of production, consumption, and exports for fruits and nuts are shown in table 11.

AGRICULTURAL IMPORTS

Turkey's imports of agricultural products were valued between $46.4 million and $128.8 million during 1959-65 (table 12). The proportion of the total import bill spent on foodstuffs during this period varied from 10 to 16 percent.

Unfortunately, there is no general agreement among various publications of the Turkish Government regarding trade statistics. Also, publications of different international organizations and various trade industries containing trade data for Turkey vary among themselves and from the various Turkish Government figures. The Turkish trade data presented herein are from trade publications of the State Institute of Statistics (SIS) or from trade statistics presented in the Robert College report.

The United States is Turkey's main supplier of agricultural products; U.S. agricultural exports to Turkey since 1958 have ranged between $30 and $81 million (table 13). Wheat and vegetable oils constituted 85 percent of such exports during this period. These exports have been primarily under P.L. 480, Title I (table 14). The first Title I (sales for local currencies) program with any nation was signed with Turkey in 1954. Turkey has imported under the Title I program every year since. Title II (grants) and Title III (donations and barter) programs have also been used in Turkey, but usually on a small scale.

Wheat

Wheat is the principal food crop of Turkey. Its production employs more farmers and more land than any other crop. Bread consumption per capita in Turkey is among the highest in the world.

There are almost as many different figures on the amount of wheat grown in any given year in Turkey as there are estimators. The official SIS figures for the area in wheat are generally regarded as being much too high. The Robert College report adjusted these figures downward.

The wheat area, and consequently production, increased sharply from 1948 to 1953. This increase in production was made possible by increased mechanization. The number of tractors (which are mostly used in wheat production) used in Turkish agriculture rose from 1,756 in 1948 to 35,600 by 1953. Since 1953 the increase in wheat area has been moderate.

Turkey has been a wheat importer and exporter in recent years, often both in the same year. The wheat exported has been a different kind and quality from that imported. The Robert College report shows that wheat exports fell from an average of 415,300 tons during 1950-54 to 146,200 tons during 1955-59 and to 5,700 tons during 1960-64. From 1956 through 1965 Turkey was a net importer of wheat in every year except 1958.

Projections.--The cultivated area devoted to wheat in Turkey is expected to remain relatively constant through 1975, and little improvement in productivity is anticipated during this period. Consequently, wheat production, which averaged 6,600,000 tons during 1962-65, is projected to increase to only 6,786,000 tons by 1970 and 6,991,000 tons by 1975 (Robert College report estimates).

Household consumption surveys found the income elasticity of demand for wheat to be near zero. The total demand for wheat is therefore expected to increase at the same rate as the population--2.6 percent per year. Demand is projected at 6,326,000 tons in 1970 and 7,242,000 by 1975. After allowances are made for feed, seed, and waste, import levels of 716,000 and 1,514,000 tons are estimated for 1970 and 1975, respectively (table 15). Such imports would amount to 20 kilograms per capita in 1970 and 37 kilograms in 1975.

Implications.--In the last decade, practically all of Turkey's wheat imports have been obtained from the United States under P.L. 480. The availability of wheat under concessional terms during the coming decade cannot be presumed. It appears reasonable to assume, however, that Turkey will have to turn increasingly to the commercial market to meet its future wheat needs.

The Robert College report, in arriving at its wheat import levels, assumed constant prices and assumed that no policy restraints would be imposed on imports. As Turkey enters the commercial market it may, because of balance-of-payment problems, restrict wheat imports or increase bread prices to reduce demand. Should this occur, the projected wheat import levels would have to be adjusted downward.

The Robert College report did not investigate potential gains in productivity through the adoption of better seed varieties. Experimental wheat varieties harvested in Turkey in 1966 and 1967 appear most promising. The use of the new varieties has been limited, however. As explained in the Introduction, the projections are presentations of what appear plausible at the time the projections are made. Should the underlying assumptions be changed as a result of technological developments, new information, or new policies, the projections will need to be amended accordingly.

The U.S. share of Turkey's wheat market in 1970 or 1975 is difficult to assess, because the P.L. 480 imports may have shifted trade patterns. In future years, the degree of competition the United States may have for the Turkish wheat market will depend on the level of world exportable supplies. This in turn will depend on a number of factors, such as how nearly self-sufficient India may become and whether Russia will be an importer or exporter during the coming decade.

Canada and Australia are expected to be U.S. competitors for Turkey's wheat market during the projected period. France, a member of the EEC with which Turkey is associated, is also expected to be looking for markets for its wheat during this period. And while Turkey has become accustomed to the quality wheats of the United States, as the country enters the commercial market it will likely, because of balance-of-payment problems, be more of a "bargain" buyer than a "quality" buyer. In view of these considerations, the United States will likely supply no more than 50 percent of Turkey's future wheat imports. This would be equivalent to 350,000 tons in 1970 and 750,000 tons by 1975.

Feed Grains and Meat

Since the demand for feed grains depends upon the consumption requirements of the livestock industry, feed grains and meat are considered together.

The number of animals in Turkey increased steadily from 1948 through 1959. However, since 1959 total animal numbers have been relatively constant.

In analyzing this situation, the Robert College report "weighted" the various types of animals according to their relative carcass meat yields. This total "weight," expressed in animal units, was compared with the total amount of protein, starch, and pastureland available during 1948-64. The results showed that the nutrients available

per animal unit dropped quickly until 1959, and then leveled off (table 16). The limited availability of feedstuffs is one factor that is preventing expansion of the livestock industry.

Projections.--In spite of a strongly positive income elasticity of demand for meat it is anticipated that the price of meat will rise enough to inhibit any further increase in consumption per capita. Thus, the consumption of meat is projected to increase at the same rate as population, which would amount to a 42-percent increase by 1975 (percentages reckoned against the 1959-63 average). No projections were made for poultry or fish, but since income elasticities for these products are high (table 4), there may be some substitution of them for other meat.

Turkey has been a small net exporter of meat, mainly in the form of live animals. However, this situation is expected to reverse and Turkey is projected to import 20,000 tons of meat by 1970 and 40,000 tons by 1975. With such imports, the need for increased domestic meat production to maintain present levels of consumption through 1975 would be less than 24 percent. This increased domestic production is expected to be met by a moderate increase in meat animal numbers and by a small increase in the yield of meat from the number of animals fed. Numbers of draft animals will diminish slowly, as mechanization of agriculture increases.

The availability of animal feed (grazing, hay, stubble, etc.) is expected to remain at present levels through 1975. The supplies of feedstuffs from industrial byproducts by 1975, especially from sugarbeets and cottonseed, are expected to increase by 10 percent over the 1959-63 average. However, the area devoted to cereals other than wheat is projected to decline. To meet the nutritional requirements of the livestock sector, feed-grain imports of approximately 300,000 tons in 1970 and 600,000 tons in 1975 will be required. Turkey has been a small net exporter of coarse grains in recent years. In 1965, however, the country was a net importer.

Implications.--As Turkey was not a net importer of meat or feed grains (except in 1965) during the period under study (1948-65), there is no historical experience to use for estimating what the U.S. share of this future import market may be. Turkey, because of balance-of-payment problems and the meat preferences of the people, is not expected to be an important importer of U.S. quality meat. There will likely be a market for U.S. variety meats in Turkey, but there is little basis for making a quantitative estimate of such a market at this time.

West Asian countries as a group are expected to be net importers of feed grains through 1975, so Turkey will likely have to look elsewhere to obtain its feed grain needs. Certain East African countries may be exporting feed grains in future years, but with the demands of nearby countries, the African countries are not likely to be consistently significant suppliers to Turkey.

The United States is the world's leading supplier of feed grains and is expected to supply the majority of the world's increasing deficit through 1975. The U.S. share of the Turkish market will be influenced by the future of the variable import levy system of the EEC of which Turkey is an associate. Barring an unfavorable import levy system on coarse grains, the United States is projected to supply about three-fourths of the Turkish feed grain market. U.S. exports are therefore estimated at 225,000 tons by 1970 and 450,000 tons by 1975.

Fats and Oils

Fats and oils furnish one of the most important elements in nutrition, one most lacking in developing countries, and one most abundant in developed nations.

In Turkey the most important of the vegetable oils is olive oil. Olives are the only oil plant grown in Turkey for the exclusive production of oil. Some types of oilseeds are byproducts of other production, such as cottonseed, so all oil cannot be charged with the full use of the land on which it is produced. Vegetable oils are more important in the Turkish diet than animal fats and oils.

Projections.--The number of olive trees in Turkey has been increasing substantially in recent years because the Government is effectively promoting the expansion of olive orchards. The Government moves wild olive trees (which are abundant) into the orchards, grafts them, and lets the farmer reap the benefit. In most cases the land utilized is not suitable for other crops. The number of olive trees, which stood at 51.3 million in 1958 and 64.3 million in 1965, is projected to increase to 78 million by 1970 and 90 million by 1975.

Based primarily upon the expected increase in olive tree numbers and the cottonseed increase, the production of fats and oils is projected to increase from 338,000 tons in 1965 to 385,000 tons in 1970 and 433,000 tons by 1975.

The income elasticity of demand as derived from the Robert College report was found to be positive for vegetable oils and negative for animal fats and oils. Thus, while the per capita consumption of fats and oils is expected to remain stationary through 1975, there will likely be some shift from animal fats to vegetable oils as income increases. The total demand for fats and oils--332,000 tons in 1965--is placed at 415,000 tons by 1970 and 479,000 by 1975. To meet this demand will require vegetable oil imports of 30,000 tons in 1970 and 46,000 tons by 1975 (table 17).

Implications.--Since 1955, the P.L. 480 program has supplied the bulk of the edible oils imported by Turkey. This importation has made possible the rapid expansion of margarine production and thus increased the total consumption of vegetable oils.

Turkey has exported olive oil since 1962. Owing to the higher price of olive oil, the requirement (under P.L. 480 policy) of dollar purchases of an equivalent quantity of U.S. oil or oilseeds has left Turkey with a substantial foreign exchange gain.

The Robert College report does not project any olive oil exports. It expects the future world market for olive oil to shrink rather than expand. The markets for Turkey's olive oil may not be significantly larger by 1975.

In light of the reduction of cotton acreage in the United States, future exports of U.S. vegetable oil under concessional terms will be primarily soybean oil. The availability of soybean oil will be determined largely by the export demand for soybean oilcake.

The largest market for U.S. soybeans and its products is Western Europe. The present levels of oil consumption in these countries are among the highest in the world and are expected to stabilize near present levels. However, there is a rising demand for meat in these countries and consequently for high-protein soybean cake and meal. Thus, U.S. exports of soybeans and soybean cake and meal to Western Europe are expected to increase significantly.

The outcome of these developments for the United States is twofold. First, as a consequence of increasing exports of soybean meal and cake, the United States will have large supplies of soybean oil available for export. Second, U.S. exports of vegetable oils, particularly soybean oil, to Western Europe will decline and these countries, especially the EEC countries, may become important exporters of soybean oil processed from imported soybeans.

Soybean oil from the United States is therefore expected to be available for export under some form of concessional terms through 1975. Although the EEC countries are expected to become soybean oil exporters, the United States is projected to supply at least two-thirds of the Turkish market, or about 20,000 tons in 1970 and 30,000 tons by 1975. Such exports would likely be primarily under concessional terms.

These projections assume that Turkey will not be obtaining large quantities of sunflowerseed oil from Russia under bilateral trade arrangements during this period.

Table 1.--Turkey: Production, trade, and consumption of selected agricultural commodities for 1960 and 1965, and projections for 1970 and 1975 1/

Commodity and year	Production	Imports	Imports from U.S.	Exports	Other uses 2/	Consumption	Per capita consumption
	1,000 metric tons						Kilograms
Wheat							
1960	6,335	372	372	--	1,902	4,805	173
1965	6,374	348	348	--	1,089	5,633	180
1970	6,786	716	350	--	1,176	6,326	179
1975	6,991	1,514	750	--	1,263	7,242	179
Feedstuffs							
1960	6,200	--	--	--	6,200	--	--
1965	5,036	11	--	--	5,047	--	--
1970	5,352	3/ 300	225	--	5,352	--	--
1975	5,458	3/ 600	450	--	5,458	--	--
Meat							
1960	352	--	--	8	--	344	12.4
1965	386	--	--	--	--	386	12.3
1970	419	20	4/	--	--	439	12.4
1975	463	40	4/	--	--	503	12.4
Fats & oils							
1960	276	39	39	--	25	281	10.1
1965	338	14	14	20.5	31	305.5	9.7
1970	385	30	20	--	40	375	10.9
1975	433	46	30	--	50	429	10.7
Cotton							
1960	175	--	--	90	-20	105	3.77
1965	308	--	--	175	20	113	3.73
1970	337	--	--	178	27	132	3.73
1975	348	--	--	183	14	151	3.73
Tobacco							
1960	139	--	--	58	51	30	1.09
1965	147	--	--	65	45	37	1.15
1970	167	--	--	81	44	42	1.18
1975	185	--	--	87	50	48	1.18
Fruits & nuts 5/							
1960	3,261	--	--	948	--	2,313	83
1965	4,018	--	--	1,030	--	2,988	95
1970	5,186	--	--	1,148	--	4,038	114
1975	5,880	--	--	1,304	--	4,576	113
Sugar							
1960	643	--	--	195	150	298	10.7
1965	558	--	--	80	60	418	13.3
1970	778	--	--	233	--	545	15.4
1975	942	--	--	259	--	683	16.9
Tea							
1960	5.7	3.9	--	--	1.8	7.8	.276
1965	10.0	--	--	2.6	-3.4	11.0	.350
1970	21.9	--	--	7.0	--	14.9	.422
1975	24.3	--	--	5.2	--	19.1	.472

1/ The projections are carried out to 1,000-ton units for consistency in additions and subtractions, but 2-digit accuracy is all that can be assumed. 2/ Includes feed, seed, waste, and stocks. 3/ Coarse grains. 4/ Not projected, as the U.S. is expected to be an insignificant supplier. 5/ Tonnage of various items weighted by a price factor.

Source: Robert College report.

Table 2.--Turkey: Balance of trade, 1958-65

Item	1958	1959	1960	1961	1962	1963	1964	1965
	Million dollars							
Imports:								
Agricultural	49.2	53.1	46.4	94.0	101.6	128.8	50.8	51.0
Nonagricultural	265.9	416.9	421.8	415.5	520.6	558.8	486.4	520.6
Total	315.1	470.0	468.2	509.5	622.2	687.6	537.2	571.6
Exports:								
Agricultural	195.6	312.7	266.0	303.1	332.8	321.8	352.4	396.9
Nonagricultural	51.7	41.1	54.7	43.6	48.4	46.3	58.4	62.0
Total	247.3	353.8	320.7	346.7	381.2	368.1	410.8	458.9
Excess of imports over exports	67.8	116.2	147.5	243.8	241.0	319.5	126.4	112.7

Source: (Turkey) State Institute of Statistics and Turkish Economic Review, Vol. III, No. 3.

Table 3.--Turkey: National income accounts, 1961-65, and projections for 1970 and 1975

Year	Gross national product	National income	Agricultural income	Per capita income
	Million lira 1/			
1961	53,989	46,679	18,810	1,639
1962	56,858	49,128	19,402	1,682
1963	59,726	51,578	19,993	1,723
1964	62,596	54,027	20,584	1,762
1965	65,466	56,476	21,174	1,799
1970	79,811	68,722	24,130	1,944
1975	94,156	80,968	27,085	2,001

1/ 1961 lira. 9 lira = $1.00.

Source: Robert College report.

Table 4.--Turkey: Urban and rural income elasticities of demand as derived from family expenditure surveys, 1965

Commodity	Elasticity coefficient	
	Urban	Rural
Total food	+ 0.06	+ 0.37
Cereals:		
Total	- .08	+ .02
Wheat	- .11	- .08
Wheat flour	+ .88	- .80
Bread	- .31	- .29
Rice	+ .20	+ 1.08
Other cereals	+ .75	- .71
Meat:		
Total	+ .86	1/ + 1.07
Beef	+ .37	+ .22
Mutton, lamb, goat	+ .75	2/ + 1.72
Poultry	+10.09	+ 2.21
Fish	+ 3.35	+ 2.68
Fats and oils:		
Total	+ .07	+ .07
Cooking fats	0	- .12
Animal fats	- .74	- .26
Vegetable oils	+ .29	+ .79
Dairy goods:		
Total	+ .87	+ .30
Milk and cream	+ 1.94	3/ + .87
Yogurt	+ .18	+ .06
White cheese	+ 1.12	+ .38
Drinks and tobacco	+ .24	--

1/ Beef only. 2/ Lamb only. 3/ Milk only.
Source: Robert College report.

Table 5.--Turkey: Estimated area in crops, cereals, pastures and meadows, 1950-51, 1958-64, and projections for 1970 and 1975

Year	Crops	Cereals	Pasture, meadows
	1,000 hectares		
1950	9,420	8,182	37,601
1951	9,977	9,004	35,653
1958	12,241	10,023	31,657
1959	12,246	9,913	31,788
1960	12,243	9,883	31,750
1961	11,866	9,603	32,029
1962	11,643	9,441	32,122
1963	11,515	9,256	32,018
1964	11,616	9,210	30,006
1970	10,853	8,044	31,765
1975	10,275	7,198	31,765

Source: Robert College report.

Table 6.--Turkey: Value of exports of agricultural commodities, 1958-65

Commodity	1958	1959	1960	1961	1962	1963	1964	1965
				1,000 dollars				
Cotton	22,398	54,320	46,044	56,650	63,501	79,534	89,406	98,275
Tobacco	84,205	91,686	65,409	87,174	96,157	66,749	90,132	88,479
Nuts 1/	30,048	46,407	45,216	46,623	64,396	59,711	57,464	63,607
Raisins	18,751	18,175	22,088	18,029	17,202	16,611	16,856	21,247
Oilseed cake	5,678	8,334	8,904	8,749	10,617	11,760	14,240	17,785
Olive oil	--	--	--	135	14,110	12,810	3,768	11,498
Mohair, wool, sheepskins	7,522	25,313	14,234	23,838	17,634	22,228	18,216	17,215
Sugar	1,641	1,854	16,520	17,444	8,335	11,558	19,309	8,180
Livestock	1,252	4,554	6,689	14,784	18,955	17,192	13,792	16,838
Figs 2/	3,610	2,051	6,902	4,895	5,660	5,853	6,102	6,842
Citrus	2,061	1,250	2,141	655	310	2,628	1,783	3,843
Other 3/	18,426	58,708	31,833	24,088	15,898	15,166	21,321	43,078
Total	195,592	312,652	265,980	303,064	332,775	321,800	352,389	396,887

1/ Filberts and pistachios.
2/ Fresh and dried.
3/ Includes rye, opium, bran, chickpeas, and lentils.

Source: (Turkey) State Institute of Statistics.

Table 7.--United States: Value of selected imports from Turkey, 1958-65

Commodity	1958	1959	1960	1961	1962	1963	1964	1965
				1,000 dollars				
Tobacco	46,375	48,624	50,341	49,282	45,580	46,064	44,040	56,237
Nuts	2,534	5,007	7,187	4,514	6,424	6,842	6,087	6,845
Fruits 1/	351	1,123	1,131	1,384	1,316	515	706	626
Animal products 2/	1,472	3,160	4,188	2,162	2,372	2,568	2,521	1,982
Other agricultural	1,266	3,333	2,564	2,779	8,016	3,414	2,486	4,301
Total agricultural	51,998	61,247	65,411	60,121	63,708	59,403	55,840	69,991
Nonagricultural	12,721	7,092	5,367	4,913	6,796	3,180	4,622	11,873
Total imports	64,719	68,339	70,778	65,034	70,504	62,583	60,462	81,864

1/ Fresh, dried, and preserved.
2/ Hides and skins, animal hair, sausage casings, and wool.

Source: U.S. Bureau of the Census.

Table 8.--Turkey: Cotton area, yield, production, and exports, 1948-50, 1958-65, and projections for 1970 and 1975

Year	Cultivated area	Yield	Production	Exports
	1,000 hectares	Kg. per hectare	1,000 metric tons	1,000 metric tons
1948	299	195	58	16
1949	305	341	104	32
1950	448	264	118	78
1958	631	285	180	37.5
1959	624	313	195	104.5
1960	612	282	175	87.7
1961	649	327	212	99.1
1962	660	371	245	115.7
1963	628	410	258	134.9
1964	680	479	326	151.2
1965	650	462	308	175.3
1970	673	505	337	178.0
1975	612	572	348	183.0

Source: Robert College report.

Table 9.--Turkey: Tobacco, area, productivity, production, and exports, 1955-65, and projections for 1970 and 1975

Year	Cultivated area	Yield	Production	Exports
	1,000 hectares	Kg. per hectare	1,000 metric tons	1,000 metric tons
1955	172.7	695	120.1	58.4
1956	175.7	663	116.6	58.8
1957	170.0	725	123.4	86.7
1958	157.0	735	115.3	54.4
1959	176.8	731	129.4	64.6
1960	187.9	741	139.2	56.1
1961	140.6	721	101.4	86.8
1962	149.3	601	89.8	88.8
1963	235.7	561	132.2	43.0
1964	272.0	643	175.0	55.2
1965	224.0	656	147.0	64.8
1970	257	670	167.0	81
1975	289	652	185.0	87

Source: Robert College report.

Table 10.--Turkey: Sugarbeet area, yield, and production, and sugar production and exports, 1955-65, and projections for 1970 and 1975

	Sugarbeets			Sugar	
	Area	Yield	Production	Production	Exports
	1,000 hectares	Tons per hectare	1,000 metric tons	1,000 metric tons	1,000 metric tons
1955	95.0	18.3	1,736	254.7	.9
1956	119.5	15.0	1,791	276.6	7.0
1957	143.9	15.3	2,206	320.5	27.3
1958	140.1	16.7	2,338	349.4	15.3
1959	164.1	21.1	3,469	499.7	22.2
1960	202.9	21.6	4,385	643.5	195.2
1961	130.4	22.1	2,877	431.7	257.3
1962	125.7	21.7	2,731	389.7	134.6
1963	134.6	24.4	3,281	471.6	40.7
1964	186.8	25.2	4,706	731.3	137.2
1965	160.0	22.5	3,600	558.0	79.5
1970	233.0	22.6	5,276	778.0	233.0
1975	278.0	23.6	6,389	942.0	259.0

Source: Robert College report.

Table 11.--Turkey: Fruit and nut production, consumption, and exports, 1960, 1965, and projections for 1970 and 1975

Item	1960	1965	1970	1975
	1,000 metric tons			
Citrus fruit:				
Production	229	294	385	461
Consumption	209	269	356	426
Exports	20	25	29	35
Figs:				
Production	145	232	237	271
Consumption	3	107	84	78
Exports	142	125	153	182
Grapes:				
Production	2,498	2,543	3,503	4,000
Consumption	2,168	2,224	3,196	3,664
Exports	330	319	307	336
Other fruit: 1/				
Production	374	533	589	649
Consumption	374	533	587	646
Exports	0	0	2	3
Hazelnuts:				
Production	59	108	140	156
Consumption 2/	-2	1	3	3
Exports	82	96	110	125
Other nuts:				
Production	126	151	195	220
Consumption	122	147	191	216
Exports	4	4	4	4

1/ Includes apple, pear, quince, peach, plum, apricot, and cherry.
2/ Production minus consumption does not equal exports because of change in stocks.

Source: Robert College report.

Table 12.--Turkey: Value of imports of agricultural commodities, 1958-65 1/

Commodities	1958	1959	1960	1961	1962	1963	1964	1965
				1,000 dollars				
Wheat	4,326	--	7,243	62,180	50,321	57,812	6,131	26,210
Wool	6,395	10,217	14,288	15,870	19,714	21,766	15,588	13,780
Hides and skins	1,560	3,285	2,642	4,419	2,428	4,678	--	3,252
Vegetable oils and fats	19,629	26,920	14,846	--	17,239	23,296	20,808	2,364
Animal oils and fats	--	--	--	531	4,644	6,523	6,152	1,658
Feed grains	581	--	--	1,673	183	2,407	--	843
Coffee, tea, cocoa, spices	4,297	8,610	7,345	7,779	5,424	3,886	1,306	2,305
Other agricultural	12,412	4,059	--	1,819	1,603	8,402	839	588
Total	49,200	53,091	46,364	94,001	101,556	128,770	50,824	51,000

1/ Because of lags in reporting and differences in valuation procedures, tables 13 and 14 are not exactly comparable with tables presenting Turkish trade data.

Source: (Turkey) State Institute of Statistics.

Table 13.--United States: Value of agricultural exports to Turkey, 1958-65

Commodity	1958	1959	1960	1961	1962	1963	1964	1965
	1,000 dollars							
Wheat	16,056	599	26,292	62,407	59,440	30,942	8,040	17,690
Rice	--	695	--	1,373	--	--	--	--
Feed grains	2,177	--	1,289	473	--	1,909	21	706
Vegetable oils	26,191	30,437	5,673	--	15,057	20,817	18,851	954
Dairy products	2,529	1,233	34	673	--	--	151	2,358
Wool and hides	8,010	1,320	1,878	3,134	897	1,663	2,090	2,558
Tallow	28	--	11	47	2,492	3,775	5,722	1,444
Meat	40	2,321	26	24	1	25	41	35
Other agricultural	314	364	1,165	1,928	3,212	3,404	5,105	4,368
Total agricultural	55,345	36,969	36,368	70,059	81,099	62,535	40,024	30,113
Nonagricultural	71,567	86,631	88,416	71,674	112,509	153,260	120,674	130,216
Total exports	126,912	123,600	124,784	141,733	193,608	215,795	160,698	160,329

Source: U.S. Bureau of the Census.

Table 14.--United States: Agricultural exports to Turkey under Public Law 480, Title I, by quantity and value, 1958-65

Year	Wheat		Corn		Cottonseed oil		Soybean oil		Tallow		Other products	Total
	1,000 M.T.	1,000 Dol.	1,000 M.T.	1,000 Dol.	1,000 M.T.	1,000 Dol.	1,000 M.T.	1,000 Dol.	1,000 M.T.	1,000 Dol.	1,000 Dol.	1,000 Dol.
1958	255.1	15,387	41.3	2,173	27.0	11,452	27.6	14,944	--	--	2,199	46,155
1959	--	--	--	--	56.7	22,139	27.4	8,059	--	--	2,942	33,140
1960	354.7	22,595	25.5	1,307	--	--	19.6	5,664	--	--	--	29,566
1961	1,027.2	62,448	9.8	473	--	--	--	--	--	--	1,373	64,294
1962	829.2	51,340	--	--	15.0	4,662	35.0	10,849	15.0	2,580	--	69,431
1963	519.4	30,671	34.9	1,892	22.4	6,517	66.7	15,549	20.6	3,642	--	58,271
1964	159.0	10,740	--	--	24.1	6,151	50.4	11,498	30.3	5,889	--	34,278
1965	265.9	15,751	--	--	--	--	--	--	--	--	534	16,275

Source: U.S. Department of Agriculture, Foreign Agricultural Service, Program Operations Division.

Table 15.--Turkey: Wheat supply and distribution, 1948-65, and projections for 1970 and 1975

Year	Area	Yield	Production	Feed, seed, and waste	Net 1/ trade	Change in stocks	Total consumption	Consumption per capita
	1,000 hectares	Kg. per hectare	1,000 metric tons					Kg.
1948..	4,357	1,086	4,732	1,040	-21	+815	2,856	143
1949..	3,727	859	2,341	900	+171	-880	2,492	122
1950..	4,029	864	3,481	1,072	+461	+42	2,828	134
1951..	4,167	1,169	4,871	1,226	+46	+213	3,568	166
1952..	4,536	1,194	5,416	1,738	-109	+46	3,523	159
1953..	5,192	1,248	6,480	1,458	-949	+604	3,469	153
1954..	4,996	765	3,822	1,262	-259	-856	3,157	135
1955..	5,295	977	5,173	1,467	-158	+232	3,316	138
1956..	5,501	872	4,797	1,442	+674	+103	3,926	158
1957..	5,368	1,159	6,222	1,617	+311	-145	4,371	171
1958..	5,588	1,147	6,409	1,625	-191	-554	5,147	196
1959..	5,651	1,042	5,888	1,747	+196	-601	4,938	183
1960..	5,775	1,097	6,335	1,540	+372	+362	4,805	173
1961..	5,778	907	5,249	1,430	+1,286	+105	5,000	176
1962..	5,850	1,083	6,336	1,581	+583	+42	5,296	181
1963..	5,888	1,273	7,495	1,580	+371	+768	5,518	184
1964..	5,902	1,054	6,221	1,431	+276	-431	5,497	179
1965..	5,923	1,104	6,374	1,455	+348	-366	5,663	180
1970..	5,979	1,135	6,786	1,176	+716	0	6,326	179
1975..	5,993	1,166	6,991	1,263	+1,514	0	7,242	179

1/ Exports = (-). Imports = (+).

Source: Robert College report.

Table 16.--Turkey: Available feedstuffs and pasturage consumed per animal unit, 1948-50 and 1958-63

Year	Protein	Starch	Pasture	Animal unit 1/	Protein per unit	Starch per unit	Pasture per unit
	1,000 M.T.	1,000 M.T.	1,000 hectares	Thousands	Kg.	Kg.	Hectare
1948	1,587	12,410	38,512	22,298	71.2	582	1,777
1949	1,390	10,691	39,221	21,340	65.1	501	1,838
1950	1,433	11,126	38,254	21,648	66.2	514	1,767
1958	1,354	10,825	31,657	27,296	49.6	397	1,160
1959	1,337	10,567	31,788	28,801	46.4	367	1,104
1960	1,350	10,924	31,750	28,036	48.2	390	1,132
1961	1,291	10,150	32,029	27,340	47.2	371	1,172
1962	1,313	10,343	32,122	27,155	48.4	381	1,183
1963	1,357	10,693	32,018	26,161	50.0	394	1,179

1/ Animal units (equivalents): Cattle, 1.0; buffaloes, 1.5; sheep and goats, 0.2; donkeys, 0.3 horses, 1.0; mules, 0.9; camels, 0.6.

Source: Robert College report.

Table 17.--Turkey: Production and trade of fats and oils, 1958-65, and projections for 1970 and 1975

Year	Production		Vegetable oil imports	Vegetable oil exports	Total supply
	Vegetable oils	Animal fats			
	1,000 metric tons				
1958	173.0	99.7	46.2	--	318.9
1959	152.9	104.2	71.4	--	329.4
1960	164.2	92.6	39.5	--	306.3
1961	205.0	100.9	31.0	--	336.9
1962	143.4	101.1	52.0	26.5	270.0
1963	196.1	100.6	76.8	14.2	359.3
1964	242.7	101.4	32.4	2.0	374.5
1965	237.0	101.0	14.0	20.5	331.5
1970	285.0	100.0	30.0	--	415.0
1975	334.0	99.0	46.0	--	479.0

Source: Robert College report.

LONG-RANGE SUPPLY AND DEMAND STUDIES, SUMMARY REPORTS, AND OTHER RECENT USDA PUBLICATIONS FOR AFRICA AND WEST ASIA

Study Reports Available:

Nigeria

Ghana

Israel

Saudi Arabia

Turkey

Republic of South Africa

Summary Reports Of Those Listed Above That Are Available:

Moe, Lyle E. Nigeria: Projected Level of Demand, Supply, and Imports of Farm Products in 1965 and 1975, with Implications for U.S. Agriculture. U.S. Dept. Agr. ERS-Foreign 105, Dec. 1964.

_____. Ghana: Supply and Demand Projections for Farm Products to 1975 with Implications for U.S. Exports. U.S. Dept. Agr. For. Agr. Econ. Rpt. No. 30, Mar. 1966.

_____. Israel: Projections of Supply and Demand for Agricultural Products to 1975. U.S. Dept. Agr. ERS-Foreign 137. Aug. 1965.

_____. Saudi Arabia: Supply and Demand Projections for Farm Products to 1975, with Implications for U.S. Exports. U.S. Dept. Agr. ERS-Foreign 168, Dec. 1966.

Other Publications Available:

Africa and Middle East Branch. The Africa and West Asia Agricultural Situation, Review of 1966 and Outlook for 1967. U.S. Dept. Agr. ERS-Foreign 186, 80 pages, May 1967.

_____. The Africa and West Asia Agricultural Situation, Midyear Review. U.S. Dept. Agr. ERS-Foreign 199, Sept. 1967.

_____. Indices of Agricultural Production in 29 African Countries. U.S. Dept. Agr. 63 pages, Dec. 1965.

_____. Indices of Agricultural Production in 10 Near East Countries. U.S. Dept. Agr. 27 pages, Dec. 1965.

Africa and Middle East Branch. Indices of Agricultural Production in 29 African Countries. U.S. Dept. Agr. 65 pages, Dec. 1966.

_____. Indices of Agricultural Production for the Near East and South Asia. U.S. Dept. Agr. 35 pages, Dec. 1966.

Berg, Eric R. Nigeria, Senegal, and The Congo (Kinshasa): Projected Level of Demand, Supply, and Exports of Oilseed Products to 1975 with Implications for U.S. Exports to the European Economic Community. 78 pages. Manning-Berg Research Associates Ltd., Edmonton, Alberta, Canada, 1967.

Kampe, Ronald E. The Agricultural Economy of Lebanon. U.S. Dept. Agr. ERS-Foreign 138, 27 pages, Oct. 1965.

Moncure, Robert C. South Africa's Agricultural Economy in Brief. U.S. Dept. Agr. ERS-Foreign 103, 8 pages, Nov. 1964.

Santmyer, Carolee. Algeria's Agricultural Economy in Brief. U.S. Dept. Agr. ERS-Foreign 131, 8 pages, July 1965.

_____. Libya's Agricultural Economy in Brief. U.S. Dept. Agr. ERS-Foreign 147, 8 pages, Mar. 1966.

Skinner, Snider W. The Congo's Agricultural Economy in Brief. U.S. Dept. Agr. ERS-Foreign 121, 8 pages, April 1965.

_____. Senegal's Agricultural Economy in Brief. U.S. Dept. Agr. ERS-Foreign 166, 11 pages, Aug. 1966.

Tegeler, Henrietta Holm. The Agriculture of West Asia. U.S. Dept. Agr. ERS-Foreign 143, 75 pages, Feb. 1966.

_____. Jordan's Agricultural Economy in Brief. U.S. Dept. Agr. ERS-Foreign 146, 8 pages, Feb. 1966.

_____. Cyprus' Agricultural Economy in Brief. U.S. Dept. Agr. ERS-Foreign 159, 9 pages, July 1966.

Treakle, H. Charles. The Agricultural Economy of Iraq. U.S. Dept. Agr. ERS-Foreign 125, 74 pages, Aug. 1965.

Warren, Cline J. The Agricultural Economy of the United Arab Republic (Egypt). U.S. Dept. Agr. For. Agr. Econ. Rpt. No. 21, 57 pages, Nov. 1964.

Warren, Cline J. and Santmyer, Carolee. Agriculture in Northern Africa. U.S. Dept. Agr. ERS-Foreign 128, 56 pages, June 1965.

Copies of the above publications may be obtained from:

The Division of Information
Office of Management Services
U.S. Department of Agriculture
Washington, D.C. 20250

☆ U. S. GOVERNMENT PRINTING OFFICE : 1967

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE